

POLYMERIZATION OF AROMATIC MONOMERS USING DERIVATIVES OF
HEMATIN

ABSTRACT OF THE INVENTION

Hematin, a hydroxyferriprotoporphyrin, is derivatized with one or more non-
5 proteinaceous amphipathic groups. The derivatized hematin can serve as a mimic of
horseradish peroxidase in polymerizing aromatic monomers, such as aromatic
compounds. These derivatized hematins can also be used as catalysts in polymerizing
aromatic monomers, and can exhibit significantly greater catalytic activity than
underivatized hematin in acidic solutions. In one embodiment, polymerization is in the
10 presence of a template, along which aromatic monomers align. An assembled hematin
includes alternating layers of hematin and a polyelectrolyte, which are deposited on an
electrically charged substrate. Assembled hematin can also be used to polymerize
aromatic monomers.